Electronic Version
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METHOD FOR FABRICATING A DEEP TRENCH CAPACITOR

Abstract

This invention pertains to a method for making a trench capacitor of DRAM devices. A portion of the collar oxide layer is masked after the second polysilicon deposition and recess etching process. Subsequently, the un-masked collar oxide layer is etched away to form an asymmetric collar oxide structure. The third polysilicon deposition and recess etching process is then carried out to form a third polysilicon stud atop the second polysilicon layer. The asymmetric collar oxide structure has a lower annular portion wrapping the second polysilicon layer and insulating the second polysilicon layer from the substrate, and an upper portion serving as a single-sided spacer for blocking diffusion of dopants from the third polysilicon stud to the substrate.